

**REMARKS**

Claims 1-22 are pending. Claims 1 and 6-8 are amended, and claims 10-22 are added via the present submission. The specification is amended due to the presence of informalities.

Claims 1-9 stand rejected under 35 U.S.C. § 102(b) as anticipated by *Kinoshita et al.* (U.S. Pat. No. 5,518,572). Applicants respectfully traverse this rejection for the following reasons:

First, both independent claims describe a “beam source” that has three electrodes in succession: an upstream electrode; a mesh electrode; and a downstream electrode (not labeled “mesh electrode”). The claims further specify that the beam source includes:

a plasma chamber formed between the upstream electrode and the mesh electrode ...; and

an accelerating chamber formed between the mesh electrode and the downstream electrode ...

In other words, all claims, either directly or by virtue of dependency, describe a beam source in which the mesh electrode is formed between the plasma chamber and the accelerating chamber.<sup>1</sup> *Kinoshita et al.* does not teach a beam source with such a feature, so the rejection should be withdrawn for at least this reason alone.

Now, applicants focus on the claim recitation (present in all claims, either explicitly or by dependency reference) that the beam source has “plasma-generating means disposed between the upstream electrode and the mesh electrode.” (The Office Action addresses the previous analogous recitation “plasma-generating means disposed between the two upstream electrodes.”) Applicants respectfully submit that the Office Action does not explain how *Kinoshita et al.*

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<sup>1</sup> By placing the mesh electrode between the plasma chamber and the accelerating chamber, a high density plasma can be formed in the plasma chamber. A charged particle beam having a uniform energy level can be easily formed by escaped ions from the mesh electrode and accelerated between the two downstream electrodes in the accelerating chamber.

supposedly teaches this feature. Applicants acknowledge the almost verbatim copy of text from the *Kinoshita et al.* specification. However, such is not an indication of a prior art teaching of the claimed feature to properly support an anticipation rejection.

In their own independent study of *Kinoshita et al.*, applicants find no plasma-generating means that is either “disposed between the upstream electrode and the mesh electrode” as now claimed or “disposed between the two upstream electrodes” as previously claimed. For example, consider the embodiment shown in Fig. 1<sup>2</sup>:

The Office Action does not indicate which *Kinoshita et al.* element is relied upon to teach the claimed “two upstream electrodes,” but applicants note that ion electrode 25 and accelerating electrode 26 are upstream of ion repellant electrode 30. (Plate 34 is *not* an electrode in this embodiment.) Column 10, in lines 37-38, discloses that plasma chamber 20 has a plasma generating means. Note that plasma chamber 20 is *not* disposed between electrodes 25 and 26. (Column 10, in line 38, discloses that the region between electrodes 25 and 26 is a charge exchange chamber.) Accordingly, the embodiment of Fig. 1 does not teach a beam source that has a plasma-generating means that is “disposed between the two upstream electrodes” or “disposed between the upstream electrode and the mesh electrode” as now claimed.

Upon review of the other *Kinoshita et al.* embodiments, applicants always observe that the plasma chamber is disposed upstream of the first electrode, instead of “between the two upstream electrodes” or “disposed between the upstream electrode and the mesh electrode.” Accordingly, applicants find no interpretation of the *Kinoshita et al.* disclosure that can anticipate the claims, and, as discussed above, the Office Action does not adequately address this feature to show such a supposed *Kinoshita et al.* teaching.

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<sup>2</sup> This embodiment is chosen for the example, because that is the first embodiment described in the text quoted in the Office Action.

For this additional reason, applicants submit that the anticipation rejection should be withdrawn.

Applicants now discuss an additional feature described in claims 12-21: base claim 12 describes a beam source such that:

the voltage-applying means applies a positive-negative pulse-type voltage that alternately irradiates either positive ions and negative ions or positive ions and electrons.

*Kinoshita et al.* does not teach a beam source with such a feature,<sup>3</sup> so claims 12-21 cannot be properly rejected based on this reference.

In view of the remarks above, applicants now submit that the application is in condition for allowance. Accordingly, a Notice of Allowability is hereby requested. If for any reason it is felt that this application is not now in condition for allowance, the Examiner is invited to contact applicants' undersigned attorney at the telephone number indicated below to arrange for disposition of this case.

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<sup>3</sup> By alternately irradiating positive ions and negative ions or electrons, high-precision etching and deposition processes can be conducted while reducing the amount of charge buildup on the surfaces of insulating materials, such as glass and ceramic materials.

In the event that this paper is not timely filed, applicants petition for an appropriate extension of time. The fees for such an extension, or any other fees which may be due, may be charged to Deposit Account No. 50-2866.

Respectfully submitted,  
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

A handwritten signature in black ink, appearing to read 'Joseph L. Felber', with a stylized flourish at the end.

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Enclosure: Petition for Extension of Time